



# **GEORGETOWN**

**water pollution  
control plant**

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ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

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**1967**

Georgetown : water pollution  
control plant.

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ONTARIO WATER RESOURCES COMMISSION  
OFFICE OF THE GENERAL MANAGER

Members of the Georgetown Local Advisory Committee,  
Town of Georgetown.

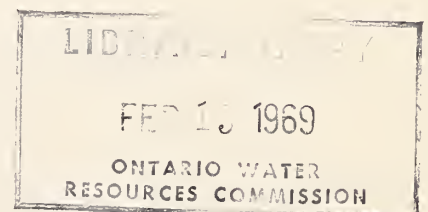
We are happy to present you with the 1967 Operating Summary for the Georgetown Water Pollution Control Plant, OWRC Project Nos. 2-0017-58 and 2-0077-61.

Your co-operation with our staff throughout the year has been appreciated. Only with such co-operation can the war against water pollution be waged effectively.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", written over the typed name.

D. S. Caverly,  
General Manager.









ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET

TORONTO 5

TELEPHONE 365-

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VICE-CHAIRMAN

D. S. CAVERLY  
GENERAL MANAGER

W. S. MACDONNELL  
COMMISSION SECRETARY

General Manager,  
Ontario Water Resources Commission.

Dear Sir:

I am pleased to submit to you the 1967 Operating Summary for the Georgetown Water Pollution Control Plant, OWRC Project Nos. 2-0017-58 and 2-0077-61.

The summary reviews progress during the year, outlines operating problems encountered and summarizes in graphs, charts and tables all significant flow and cost data.

Yours very truly,

A handwritten signature in dark ink, reading "D. A. McTavish".

D. A. McTavish, P. Eng.,  
Director,  
Division of Plant Operations.



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## FOREWORD

● This operating summary has been prepared in order to acquaint readers with the management of the project during 1967. The efficiency of the plant's operation is reflected in a general review. Significant financial details are recorded, and technical performance is illustrated by graphs and charts.

The summary should answer two salient questions. Are the project's facilities adequate at this time? And can the project meet future requirements?

The Regional Operations Engineer is primarily responsible for the preparation of the report, and will be pleased to answer any questions regarding it.

Most of the material for the graphs and charts was compiled by the statistics section of the Division of Plant Operations, with the final versions of the graphs being drawn by the draughting section of the Division of Sanitary Engineering. Cost data were provided by the Division of Finance.

It will be evident from the report that all of these groups co-operated with substantial success.

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**GEORGETOWN**  
**water pollution control plant**

operated for

THE TOWN OF GEORGETOWN

by the

ONTARIO WATER RESOURCES COMMISSION

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DIVISION OF PLANT OPERATIONS

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Assistant Director:	C. W. Perry
Regional Supervisor:	A. C. Beattie
Operations Engineer:	B. W. Hansler

801 Bay Street Toronto 5



## **'67 REVIEW**

A total of 650,108 million gallons of sewage was treated during the year at a total operating cost of \$42,383.25. The operating costs per pound of BOD removed was \$0.09. It should be noted that because of flow meter complications the 1967 flow values cannot be compared with 1966 flow values which were in the most part incorrect.

The average daily flow of 1.753 million gallons was 117 percent greater than the design flow of 1.5 million gallons. This design flow was exceeded 90 percent of the time.

The average raw sewage BOD and suspended solids concentrations of 85 ppm and 233 ppm respectively combined with an average volatile solids content of 53.6 percent in the raw sludge indicates that the raw sewage contained a significant amount of inert material. Industrial wastes received at the plant are probably the major contributing factor.

The plant produced an effluent with an average BOD and suspended solids concentration of 11 ppm and 23 ppm respectively. The average BOD and suspended solids reduction efficiencies were 87.1 and 89.7 percent respectively.

## PROJECT COSTS

NET CAPITAL COST (Final)	2-0017-58	\$871,677.01	
DEDUCT payments from Municipalities		<u>48,379.33</u>	
Long Term Debt to OWRC			\$823,297.68
NET CAPITAL COST (Final)	2-0077-61	\$ 63,230.31	
DEDUCT Portion Financed by CMHC (Final)		<u>19,072.10</u>	
Long Term Debt to OWRC			<u>44,158.21</u>
Total Long Term Debt to OWRC			<u>\$867,455.89</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1967:	2-0017-58	\$139,661.16	
	2-0077-61	<u>5,340.39</u>	<u>\$145,001.55</u>

	<u>2-0017-58</u>	<u>2-0077-61</u>	<u>TOTAL</u>
Net Operating	\$ 42,383.25		\$ 42,383.25
Debt Retirement	16,614.00	\$ 891.00	17,505.00
Reserve	4,969.79	361.90	5,331.69
Interest Charged	<u>46,428.61</u>	<u>2,490.22</u>	<u>48,918.83</u>
TOTALS	<u>\$110,395.65</u>	<u>\$3,743.12</u>	<u>\$114,138.77</u>

RESERVE ACCOUNT

	<u>2-0017-58</u>	<u>2-0077-61</u>	<u>TOTALS</u>
Balance @ Jan. 1, 1967	\$39,068.89	\$2,166.78	\$41,235.67
Deposited by Municipality	4,969.79	361.90	5,331.69
Interest Earned	<u>2,172.03</u>	<u>130.84</u>	<u>2,302.87</u>
	\$46,210.71	\$2,659.52	\$48,870.23
Less Expenditures	<u>7,590.07</u>	<u>-</u>	<u>7,590.07</u>
Balance at Dec. 31, 1967	<u>\$38,620.64</u>	<u>\$2,659.52</u>	<u>\$41,280.16</u>



## MONTHLY OPERATING COSTS

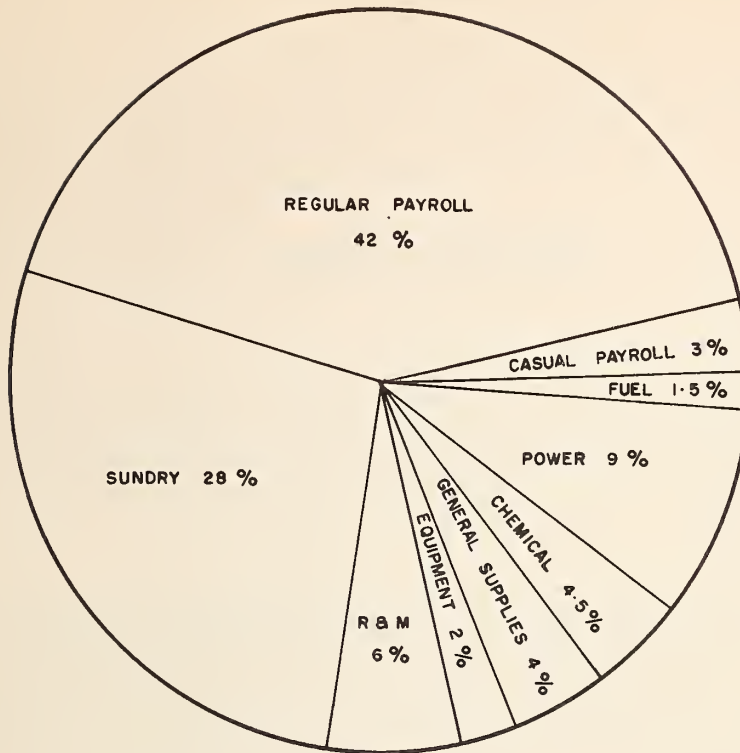
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY
JAN	1683.11	1257.73		47.30			110.07		450.00	16.01
FEB	2898.75	1254.22		39.57	359.32	228.38	54.35	71.82	64.14	766.95
MARCH	3854.03	2040.02		99.57	336.77	228.38	72.35	161.47	163.97	751.56
APRIL	3436.02	1352.18		51.54	295.09		160.60	70.07	445.75	1060.79
MAY	2234.30	1467.14	154.32	50.81	294.63		213.58		8.15	45.67
JUNE	3381.04	1328.36	308.64		333.74		32.68		(13.10)	1390.72
JULY	3829.39	1374.35	311.74		301.62	205.54	101.42	(16.11)	205.54	1345.29
AUG	2945.66	1393.63	165.82		370.69	476.79	192.18	231.04	30.65	84.86
SEPT	4372.51	2070.93	316.43		283.12		49.40	290.88	229.42	1132.33
OCT	6261.69	1389.06		24.03	316.23	228.38	176.39	41.45	374.43	3711.72
NOV	3589.30	1390.28		58.69	296.29	228.38	311.44	68.87	7.55	1227.80
DEC	3697.40	1374.02		253.61	769.29	205.54	309.17		469.75	316.02
TOTAL	42383.25	17691.92	1256.95	685.12	3956.79	1801.39	1783.63	919.49	2436.25	11851.71

\* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$9195.75  
BRACKETS INDICATE CREDIT

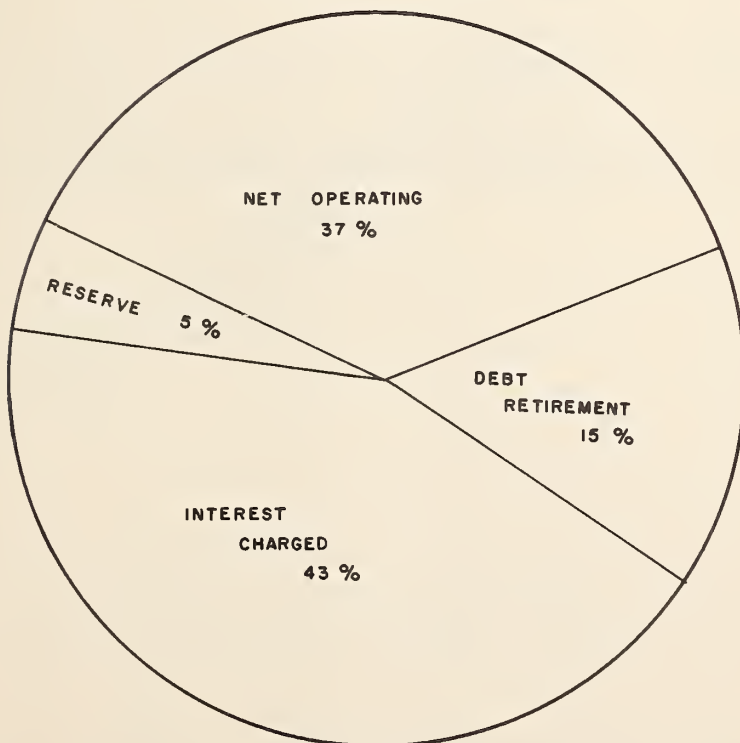
## YEARLY OPERATING COSTS

YEAR	M. G. TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1962	351,410	\$22842.71	\$65.00	6 CENTS
1963	325,551	26694.78	81.63	8 CENTS
1964	307,116	29738.15	96.82	10 CENTS
1965	346,542	31209.58	90.06	16 CENTS
1966	363,471	38306.82	105.39	15 CENTS
1967	650,108	42383.25	65.19	9 CENTS

## 1967 OPERATING COSTS



## TOTAL ANNUAL COST



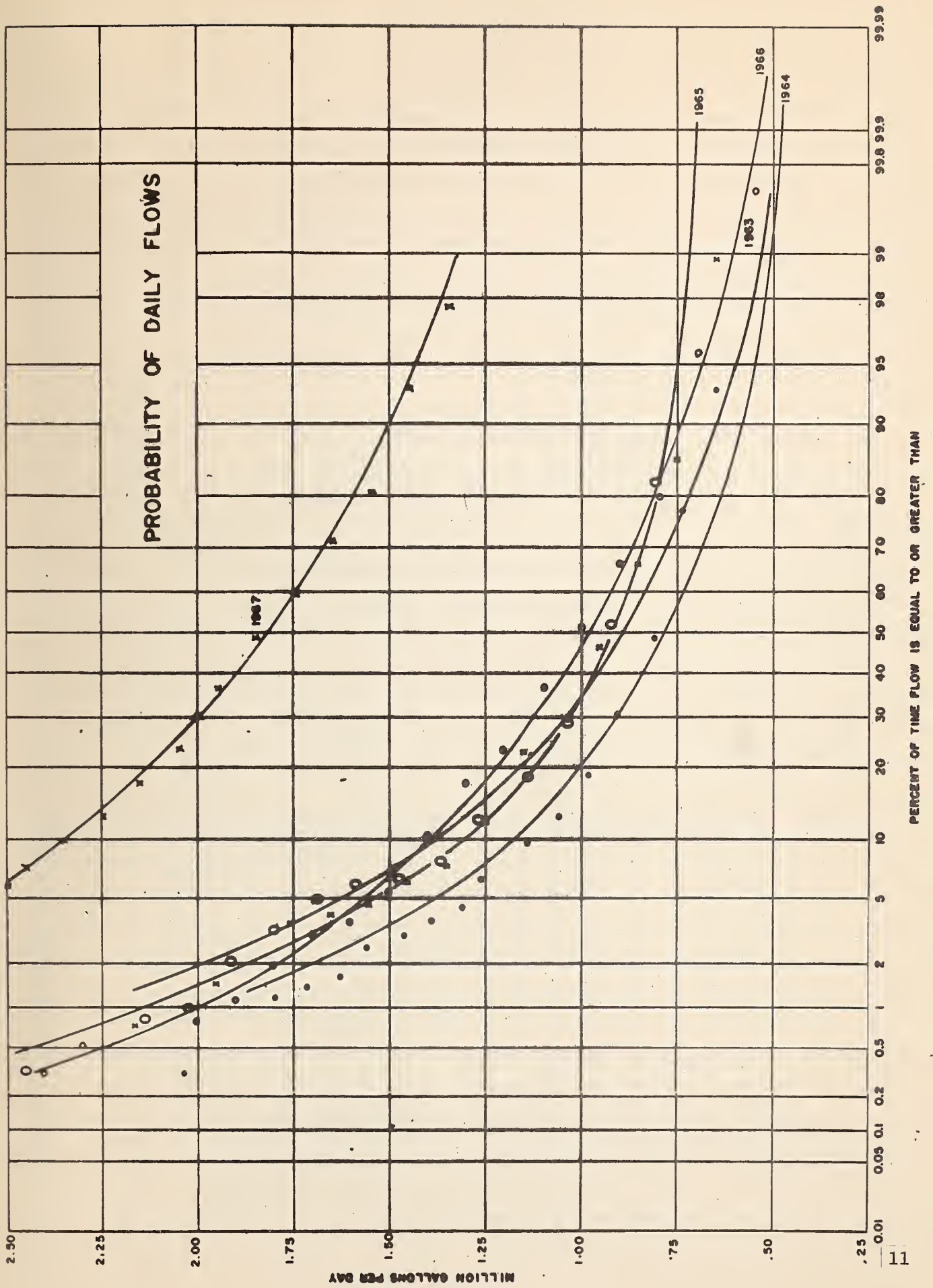
## Process Data

The average daily flow for the year was 1.753 million gallons which is 117 percent of the design flow of 1.5 mgd. Flows in 1967 could not be compared with most of the flow values in 1966 because of an inaccuracy in the flow meter during 1966. The design flow was exceeded 90 percent of the time in 1967.

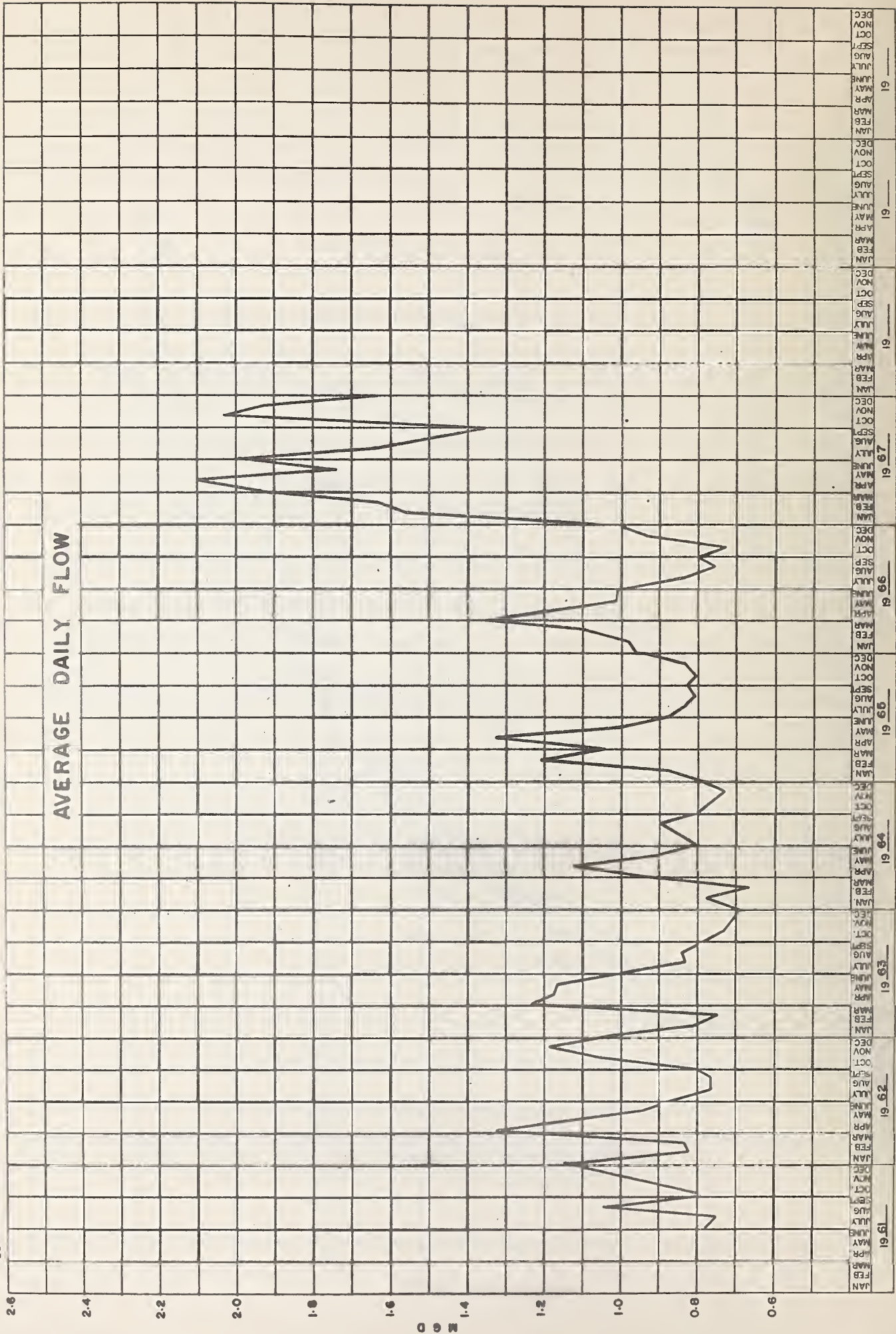
The average raw sewage, BOD and suspended solids concentrations were 85 ppm and 233 ppm respectively. The raw sewage BOD concentrations of 85 ppm is 43 percent of the design value of 200 ppm. The raw sewage suspended solids concentration of 233 ppm was 116 percent of the design value of 200 ppm. During the year, the raw sewage BOD did not exceed the design value of 200 ppm. However, during the year, the suspended solids concentration in the raw sewage exceeded the design value of 200 ppm 64 percent of the time.

The difference in average concentrations between the raw sewage suspended solids and BOD indicates a higher than normal ratio of inert to organic material.

The effluent BOD and suspended solids concentrations were 11 ppm and 23 ppm respectively. The OWRC objective for each is 15 ppm. The BOD and suspended solids concentrations in the effluent exceeded 15 ppm 30 percent and 76 percent of the time respectively. The suspended solids concentrations in the effluent were particularly high in the early part of the year.



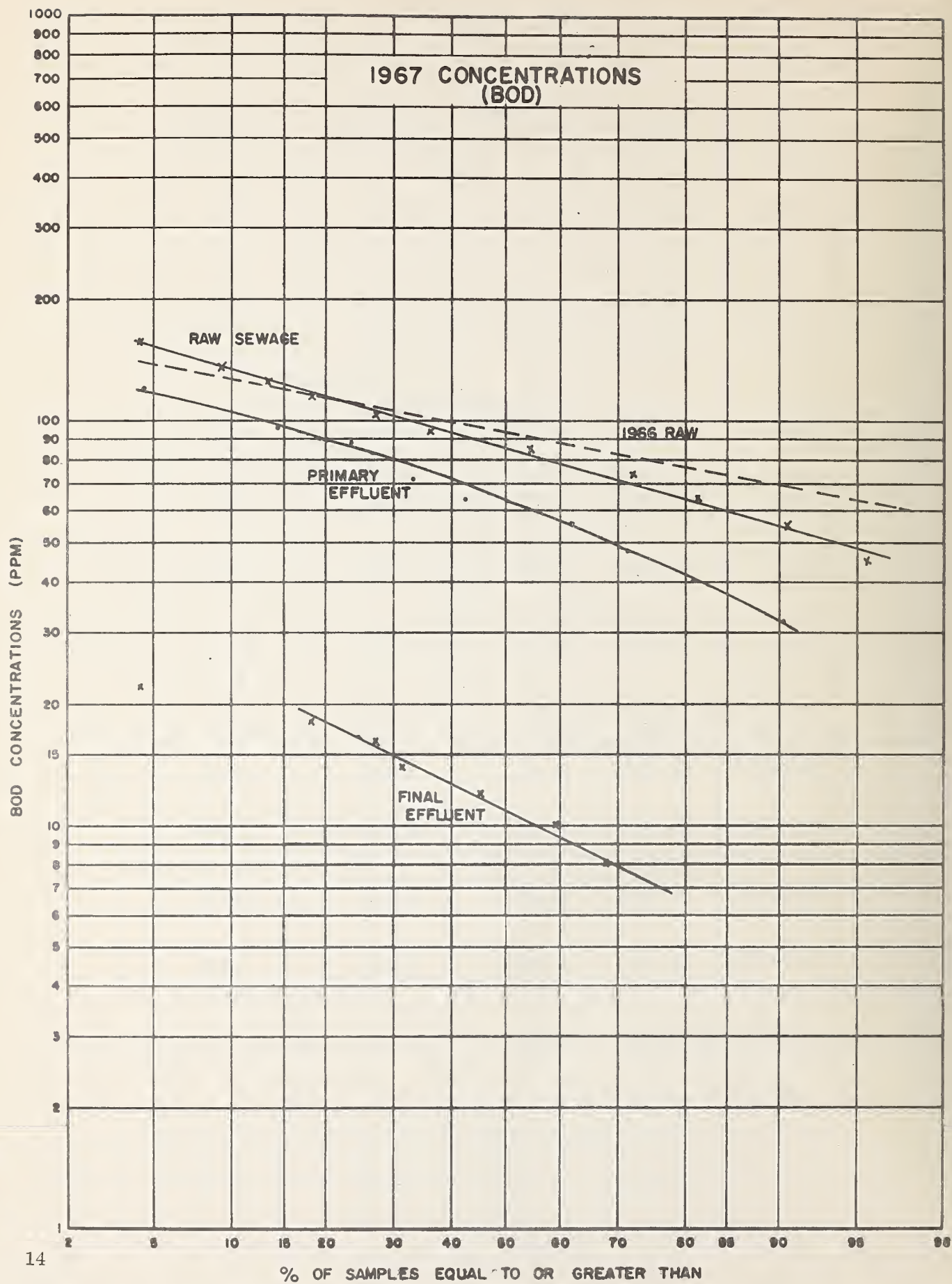


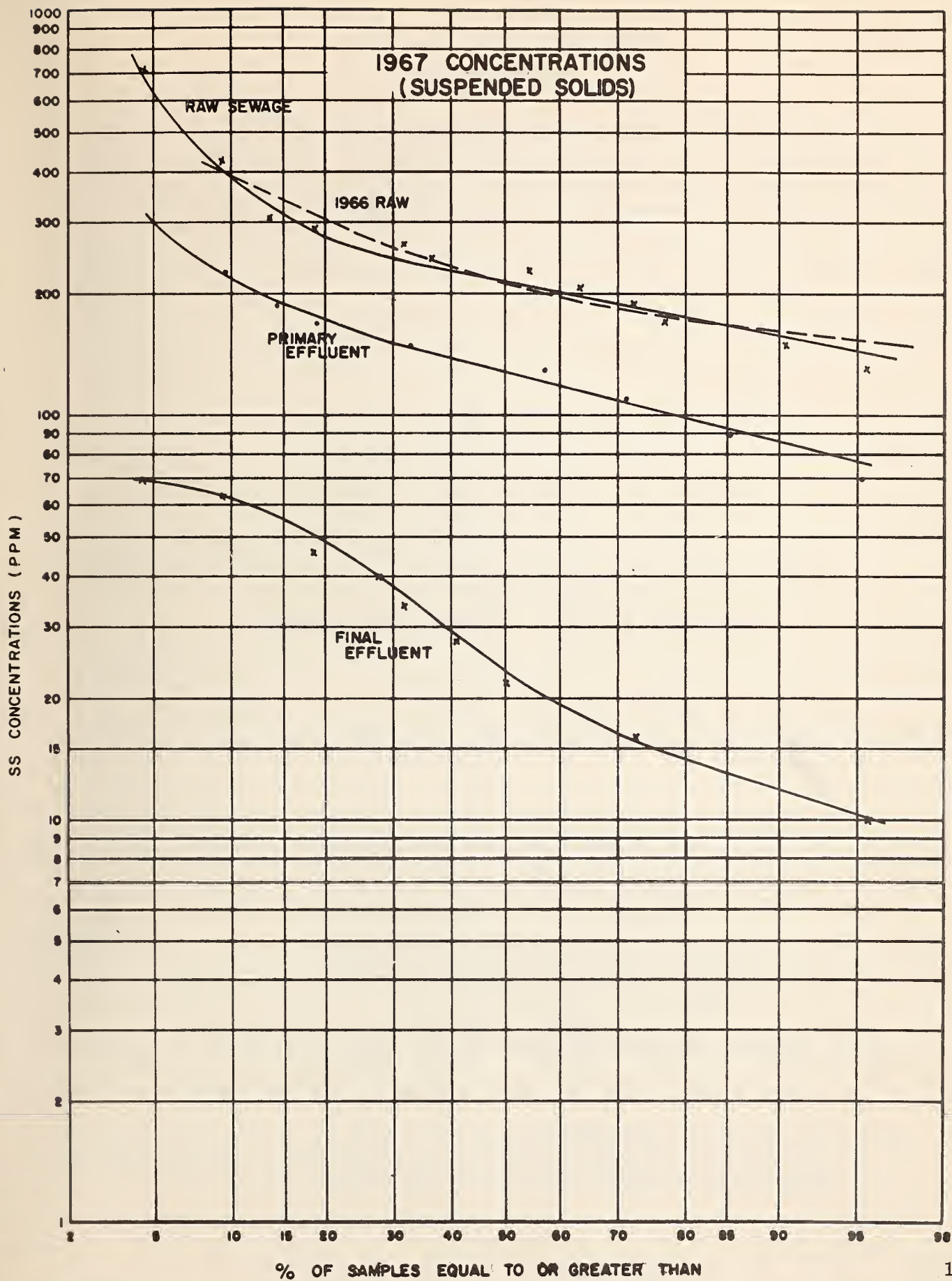




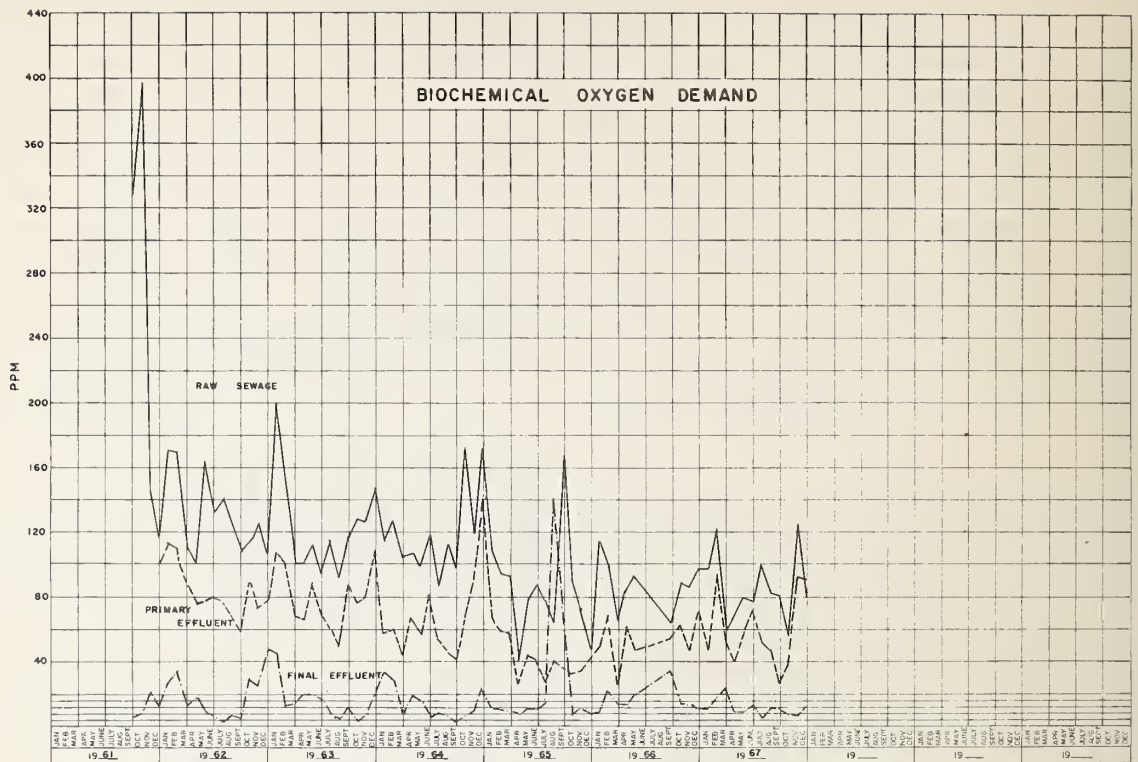
# FLOW DATA

Month	Total Flow ( MG)	Avg. Daily Flow (MGD)	Max. Daily Flow ( MG)	Min Daily Flow (MG)
January	48.278	1.557	2.445	1.317
February	45.896	1.639	2.648	1.408
March	60.657	1.957	3.000	1.358
April	63.170	2.106	3.561	1.644
May	54.099	1.746	2.113	1.554
June	60.289	2.010	2.779	1.526
July	51.318	1.655	2.500	1.192
August	46.006	1.484	2.061	1.220
September	40.407	1.347	1.456	1.165
October	63.207	2.039	3.786	1.161
November	57.803	1.927	2.472	1.712
December	48.976	1.580	2.390	.338
Total	650.108	1.753		
Average	54.176			

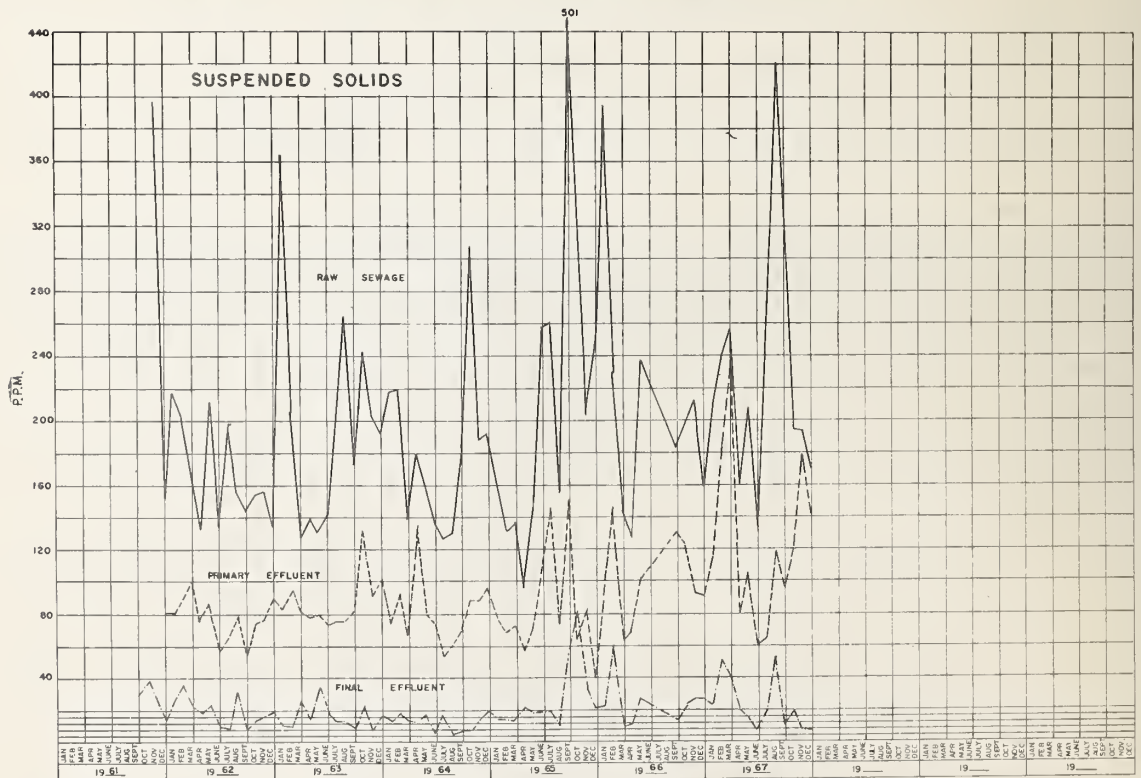








## MONTHLY VARIATIONS



## GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	97	11	88.6	20.76	212	23	89.2	45.63	38
FEB.	122	17	86.1	24.10	241	51	78.8	43.60	24
MAR.	57	23	59.6	10.31	257	41	84.0	65.51	10
APR.	68	9	86.8	18.64	160	20	87.5	44.22	13
MAY	79	8.9	88.7	18.96	208	15	92.8	52.21	6
JUNE	77	13.1	83.0	19.26	133	7	94.7	37.98	36
JULY	100	5	95.0	24.38	282	19	82.6	67.48	42
AUG.	82	9.8	88.0	16.61	421	53	87.4	84.65	25
SEPT.	81	9.7	88.0	14.41	319	10	96.9	62.43	24
OCT.	55	7.0	87.3	15.17	195	19	90.3	55.62	43
NOV.	125	6.0	95.2	34.39	19.4	7	96.4	54.05	13
DEC.	80	11	86.2	16.90	170	7	95.9	39.92	17
TOTAL	-	-	-	233.89	-	-	-	653.30	291
AVG.	85	11	87.1	19.49	233	23	89.7	54.44	24

### COMMENTS

The average reduction of BOD concentration was 87.1 percent. The average final effluent BOD of 11 ppm was less than the OWRC objective of 15 ppm.

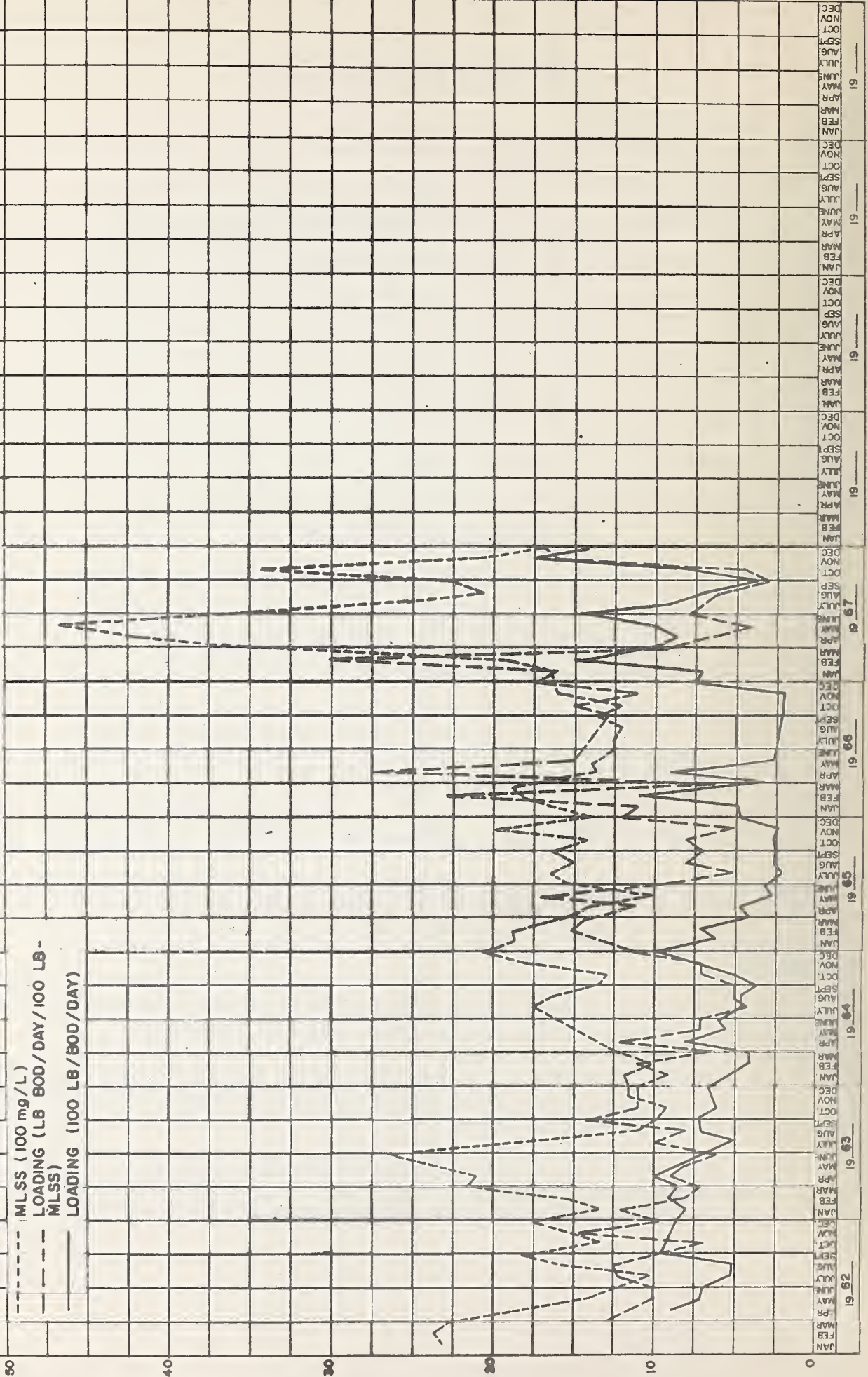
The average reduction of suspended solids concentration was 89.7 percent producing an effluent with an average suspended solids concentration of 23 ppm, which was higher than the OWRC objective of 15 ppm.

During the year, 291 cu. ft. of grit was removed averaging 0.45 cu. ft. per million gallons of sewage.



# AERATION TANK RESULTS

----- MLSS (100 mg/L)  
- - - - - LOADING (LB BOD/DAY/100 LB -  
          MLSS)  
\_\_\_\_\_ LOADING (100 LB BOD/DAY)



## AERATION SECTION

MONTH	PRIM. EFFL B.O.D. PPM.	MLSS. PPM.	LBS BOD. PER 100 LBS. M. L. S. S.
JANUARY	46	1686	16
FEBRUARY	93	1930	30
MARCH	51	3506	11
APRIL	39	4235	7
MAY	58	4698	4
JUNE	71	3658	8
JULY	52	2703	7
AUGUST	46	2084	6
SEPTEMBER	26	2232	3
OCTOBER	39	3430	4
NOVEMBER	92	2123	16
DECEMBER	90	1651	17
TOTAL	-	-	-
AVERAGE	59	2828	11

### COMMENTS

The average loading on the aeration section was 11 lbs. of BOD per 100 lbs. of MLSS. The average primary effluent BOD was 59 ppm. An average MLSS concentration of 2828 ppm was maintained.

## DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS		
	GALLONS	% SOLIDS	% VOL. MAT	GALLONS	% SOLIDS	% VOL. MAT
JAN	106603	9.60	53.4	86431	5.1	40.2
FEB.	98684	-	-	97045	9.4	41.6
MAR.	112584	1.35	47.4	149105	12.7	46.5
APR.	96951	.36	60.2	181453	-	-
MAY	85782	-	-	164805	-	-
JUNE	8640*	-	-	154664	-	-
JULY	- *	-	-	156181	-	-
AUG.	- *	-	-	189035	-	-
SEPT.	- *	-	-	229976	-	-
OCT.	- *	-	-	44479	-	-
NOV.	- *	-	-	-	-	-
DEC.	- *	-	-	-	-	-
TOTAL	509244	-	-	1453174	-	-
AVG.	-	.87	53.6	-	9.1	42.7

\* Digester out of service - clean out.

### COMMENTS

Because of physical problems with the digester system, the digesters were not in operation from May to the end of the year.



## CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	48.278	850	1.76
FEBRUARY	45.896	823	1.79
MARCH	60.657	1002	1.65
APRIL	63.170	990	1.56
MAY	54.099	960	1.77
JUNE	60.289	958	1.59
JULY	51.318	811	1.58
AUGUST	46.006	799	1.74
SEPTEMBER	40.407	942	2.33
OCTOBER	63.207	1075	1.70
NOVEMBER	57.803	922	1.60
DECEMBER	48.978	930	1.90
TOTAL	640.108	11062	-
AVERAGE	53.342	922	1.75

MGD - 1.754

## COMMENTS

An average dosage of 1.75 ppm was required to maintain an average chlorine residual of 0.5 ppm.

DATE DUE	
ONTARIO WATER RESOURCES COMMISSION DIVISION OF PLANT OPERATIONS.	
GEORGETOWN - OPERATING SUMMARY 1967	
DATE	ISSUED TO COPY #1



## **CONCLUSIONS**

The average daily flow was 1.754 million gallons per day. The average effluent and BOD concentrations were 11 ppm and 23 ppm respectively.

## **RECOMMENDATIONS**

Because the average hydraulic loading exceeded the design hydraulic loading by 17 percent, steps should be taken to expand the project.

Industrial waste control should be continued in order to control inert solids concentrations in the raw sewage.

